Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application. Changes are shown with deletions being designated by strike-through or double-brackets and insertion of new language being underlined.

Listing of Claims:

1. (Currently Amended) A ~~multi-modal~~ medical device system that provides treatment therapy for a nervous system disorder, comprising:

an implantable component configured ~~for multi-modal operation, the implantable component configured to provide the treatment therapy in~~ to be implanted within a patient body and operate according to a first treatment therapy mode~~, wherein the first treatment therapy mode corresponds to an open-loop control mode~~; and

a first external component configured to be positioned external to the patient body, ~~provide an indication~~ generate a signal indicating the presence of the first external component to the implantable component ~~of the presence of the first external component~~, and [[to]] provide ~~at least one feature to the implantable component~~ a second treatment therapy mode; ~~and~~

~~a first communications channel configured to optionally couple the implantable component and the external component, wherein, in operation, data is transported over the communications channel,~~

the implantable component further configured to receive the signal from the first external component and detect that ~~so that if it does not receive a signal from~~ the first external component ~~within a first period of time~~ is present based on receiving the signal,

the implantable component further configured to ~~continues to support the at least one feature provided by the first external component until a second period of time when the implantable component~~ detect[[s]] that the first external component is not ~~longer~~ available based on not receiving the signal,

the implantable component further configured to ~~operate~~ begin operating in ~~the open-loop control mode when it detects that~~ conjunction with the first external component ~~is no longer available and to automatically switch~~ according to [[a]] the second treatment therapy mode ~~when~~

~~the first external component is re-coupled to~~ if the implantable component ~~through the communications channel~~ detects that the first external component is present, and

stop operating according to the second treatment therapy mode ~~corresponding to a closed-loop control mode, wherein, in operation, the closed-loop control mode is responsive to the data being transported over the communications channel~~ if the implantable component detects that the first external component is not present.

2. (Currently Amended) The ~~multi-modal~~ medical device system of claim 1, further comprising:

a ~~programmer~~ second external component configured to ~~directly~~ communicate with the implantable component through the first external component ~~over the first communications channel~~ in order to support a third treatment therapy mode.

3. (Currently Amended) The ~~multi-modal~~ medical device system of ~~claim 1~~claim 2, ~~further comprising:~~ wherein the second external component comprises a programmer ~~configured to indirectly communicate with the implantable component through the first external component in order to support a third treatment therapy mode~~.

4.-6. (Cancelled)

7. (Currently Amended) The ~~multi-modal~~ medical device system of claim 1, wherein the first external component comprises an interface configured to couple to a triggering device and wherein~~, in operation,~~ an activation of the triggering device is indicative of a relevant event.

8. (Currently Amended) The ~~multi-modal~~ medical device system of claim 1, wherein the first external component ~~comprises an interface~~ is configured to ~~couple to~~ communicate with the implantable device over a ~~second~~ first communications channel, and wherein the first external component is configured to ~~send messaging~~ communicate with a remote computing device over [[the]] a second communications channel.

9.-10 (Cancelled)

11. (Currently Amended) A ~~multi-modal~~ medical device system that provides treatment therapy for a nervous system disorder, comprising:

an implantable component configured ~~for multi-modal operation, that applies the treatment therapy and that provides~~ to operate according to a first treatment therapy mode~~, wherein the first treatment therapy mode is an open-loop control mode;~~ and

~~receive~~ a signal from a[[n]] first external component ~~comprising a first module that provides an indication~~ the signal indicating to the implantable component [[of]] the presence of the first external component~~, and to provide at least one feature to the implantable component; and~~ the first treatment therapy mode not requiring the presence of the first external component;

~~a communications channel configured to couple the implantable component with the external component, wherein, in operation, data is transported over the communications channel,~~

the implantable component further configured ~~so that if it does not receive a~~ to detect that the first external component is present based on receiving the signal from the first external component ~~within a first period of time~~,

the implantable component further configured to detect that ~~continues to support the at least one feature provided by~~ the first external component ~~until a second period of time when the implantable component detects that the external component~~ is not ~~longer~~ available based on not receiving the signal from the external component,

the implantable component further configured to begin ~~operate~~ operating in ~~the open-loop control mode when it detects that~~ conjunction with the first external component ~~is no longer available and to automatically switch~~ according to a second treatment therapy mode ~~when the external component is re-coupled to~~ if the implantable component ~~through the communications channel,~~ detects that the first external component is present, and

the implantable component further configured to stop operating according to the second treatment therapy mode ~~corresponding to a closed-loop control mode, wherein, in operation, the closed-loop control mode is responsive to the data being transported over the communications channel~~ if the implantable component detects that first external component is not present.

12. (Cancelled)

13. (Currently Amended) A method for a treatment of a nervous system disorder with a medical device system ~~with a medical device system~~, comprising:

~~(a) applying a treatment therapy to a patient for the nervous system disorder;~~

~~(b) supporting~~ operating an implantable component of the medical device system in a first treatment therapy mode ~~with an implantable component configured for multi-modal operation~~;

~~(c) coupling the implantable component and~~ receiving a signal from a[[n]] first external component of the medical device system, ~~through a communications channel and providing at least one feature to the implantable component from~~ the signal indicating the presence of the first external component ~~through the communications channel~~; ~~and~~

~~(d) if the implantable component does not receive a signal from~~ detecting that the first external component ~~within a first period of time,~~ is present based on receiving the signal;

detecting that the first ~~the implantable component continues to support the at least one feature provided by the~~ external component ~~until a second period of time when the implantable component detects that the external component~~ is not ~~longer~~ available based on not receiving the signal;[[,]]

operating ~~and if the external component and~~ the implantable component in conjunction with the first external component according ~~are re-coupled through the communications channel, automatically switching~~ to a second treatment therapy mode if the first external component is detected as present; and

not operating according to the second treatment therapy mode if the first external component is detected as not present.

14.-15. (Cancelled)

16. (Currently Amended) The method of claim 13, wherein the ~~data comprises neurological data, wherein the~~ first treatment therapy mode includes a ~~basic~~ first loop recording capability, and wherein the second treatment therapy mode includes ~~an enhanced~~ a second loop recording capability, the second loop recording capability comprising at least one of a longer period of time and a greater number of monitored signals than the first loop recording capability.

17. (Currently Amended) The method of ~~claim 16~~claim 73, further comprising ~~storing~~ receiving the neurological data ~~by the implantable component, and retrieving the neurological data~~ from the implantable component and storing the neurological data [[by]] within the external component.

18. (Currently Amended) The method of ~~claim 16~~claim 73, further comprising ~~storing the neurological data by the implantable component, retrieving~~ receiving the neurological data from the implantable component with the first external component, and sending the neurological data to ~~an external~~ a remote site via the external component.

19. (Previously Presented) The method of claim 18, comprising communicating with a health care professional about the neurological data.

20. (Currently Amended) The method of claim 19, wherein the neurological data further comprises location information, the location information being indicative of a location of the patient.

21. (Cancelled)

22. (Currently Amended) The method of ~~claim 21~~claim 13, further comprising

~~(i) monitoring whether communications with~~ detecting that the external component is ~~maintained;~~ not available based on not receiving the signal within

~~(ii) if the communications has been disrupted for~~ a predetermined time interval~~, presuming that the external component is decoupled~~.

23. (Currently Amended) The method of claim 13, further comprising, ~~if the~~ detecting the presence of a second external component and operating the implantable component in conjunction with the second external component ~~are coupled, simultaneously supporting~~ according to a third treatment therapy mode ~~and the second treatment therapy~~ if the implantable component detects that the second external component is present.

24.-25. (Cancelled)

26. (Original) The method of claim 13, wherein the nervous system disorder is selected from the group consisting of a disorder of a central nervous system, a disorder of a peripheral nervous system, a mental health disorder, and a psychiatric disorder.

27.-28. (Cancelled)

29. (Original) The method of claim 13, wherein the treatment therapy is provided to a location of a body selected from the group consisting of a brain, a vagal nerve, a spinal cord, and a peripheral nerve.

30. (Currently Amended) The method of ~~claim 13~~claim 73, wherein the first treatment therapy mode corresponds to an open-loop treatment therapy and wherein the second treatment therapy mode corresponds to an incremental treatment therapy.

31. (Currently Amended) The method of claim 30, ~~wherein the data comprises neurological data, the method~~ further comprising:

monitoring the neurological data; and

triggering a delivery of the incremental treatment therapy in response to the monitored neurological data.

32. (Currently Amended) The method of claim 30, wherein the incremental treatment therapy comprises an application of at least one of a pharmaceutical agent and electrical stimulation.

33. (Cancelled)

34. (Currently Amended) The method of ~~claim 13~~claim 73, ~~wherein the data comprises neurological data and~~ wherein the second treatment therapy mode supports an alarm in response

to the neurological data, the neurological data being indicative of an impending medical condition.

35.-38. (Cancelled)

39. (Currently Amended) A method for treatment of a nervous system disorder with a medical device system, comprising:

~~(a) providing an open-loop treatment therapy with~~ operating an implantable component of the medical device system ~~configured for at least two modes of operation, the~~ in an open-loop treatment therapy ~~being one of the at least two~~ mode[[s]] ~~of operation;~~

~~(b) periodically sending~~ receiving a signal from ~~the implantable~~ a first external component of the medical device system, the signal indicating the presences of ~~to an~~ the first external component;

~~(c) in response to receiving a reply from~~ detecting that the first external component is present based on receiving the signal~~within a predetermined period, providing neurological data from the implantable component to the external component over a communication channel, the neurological data being responsive to the open-loop treatment therapy;~~

~~(d) in response to providing the neurological data to the external component, receiving an instruction from the external component by~~ operating the implantable component in conjunction with the first external component according to a ~~for providing~~ closed-loop treatment therapy mode if the first external component is detected as present~~over the communication channel, the closed-loop treatment therapy being adjusted in response to the neurological data being provided over the communication channel, the closed-loop treatment therapy being another of the at least two modes of operation;~~ and

~~(e) if the implantable component does not receive a signal from the external component within a first period of time, the implantable component continues to support at least one feature provided by the external component until a second period of time when the implantable component detects~~ detecting that the first external component is not ~~longer~~ available based on not receiving the signal; and ~~switches to the open-loop treatment therapy, and if the external component and the implantable component are re-coupled, automatically switching the medical device system to the closed-loop treatment therapy;~~

not operating according to the closed-loop treatment therapy mode if ~~supported by~~ the first external component ~~in accordance with the neurological data~~is detected as not present.

40. (Currently Amended) A ~~multi-modal~~ medical device system that provides treatment therapy for a nervous system disorder, comprising:

an implantable component configured to receive a signal from an external component, the signal indicating the presence of the external component~~for multi-modal operation~~,

the implantable component further configured to operate according to ~~apply the treatment therapy in either~~ an open-loop ~~control~~ treatment therapy mode that does not require the presence of the external component and operate according to[[or]] a closed-loop ~~control~~ treatment therapy mode that does not require the presence of the external component;

~~an external component configured to send data to the implantable component, receive data from the implantable component, to provide an instruction to the implantable component to operate in either the open-loop control mode or the closed-loop control mode; and~~

~~at least one communication channel configured to optionally couple the implantable component and the external component, wherein, in operation, the data is transported over the at least one communication channel,~~

the implantable component further configured to detect that the external component is present based on receiving ~~so that if it does not receive a~~ the signal from the external component ~~within a first period of time, the implantable component continues to support at least one feature provided by~~ and begin operating in conjunction with the external component ~~until a second period of time when~~ according to a third treatment therapy mode if the implantable component detects that the external component is ~~no longer available,~~ present; and

the implantable component further configured to ~~operate in the open-loop control mode when it~~ detect[[s]] that the external component is not ~~longer~~ available based on not receiving the signal, and to stop operating according to the third treatment therapy ~~automatically switch to the closed-loop control~~ mode ~~when the external component is re-coupled to~~ if the implantable component detects that the external component is not present, and ~~through the at least one communication channel, wherein, in operation,~~ to operate according to either one of the open-loop treatment therapy mode and the closed-loop ~~control~~ treatment therapy mode ~~is responsive to~~

~~the data being transported over the at least one communication channel~~ upon stopping operating according to the third treatment therapy mode.

41.-44. (Cancelled)

45. (Currently Amended) The method of claim 13, wherein the first treatment therapy mode corresponds to an open-loop treatment therapy mode and the second treatment therapy mode corresponds to a closed-loop treatment therapy mode.

46.-50. (Cancelled)

51. (Previously Presented) The method of claim 13, wherein at least one of the first treatment therapy mode ~~comprises therapy selected from the group consisting of electrical stimulation, magnetic stimulation, drug infusion, brain temperature control, and a sensory warning,~~ and the second treatment therapy mode ~~comprises~~ provides a treatment therapy selected from the group consisting of electrical stimulation, magnetic stimulation, drug infusion, brain temperature control, and a sensory warning.

52. (New) The medical device system of claim 1, further comprising one or more monitoring elements coupled to the implantable component, the one or more monitoring elements configured to sense neurological activity and generate a corresponding neurological signal comprising neurological data.

53. (New) The medical device system of claim 52, wherein the first external component is configured to receive the neurological data from the implantable component and configured to store the neurological data within the first external component and/or send the neurological data to a remote site.

54. (New) The medical device system of claim 1, wherein the implantable component is further configured to detect that the first external component is not present based on not receiving the signal from the first external component within a first period of time.

55. (New) The medical device system of claim 1, wherein the implantable component is further configured to periodically send an outgoing signal from the implantable component to the first external component and receive the signal from the first external component in reply to the outgoing signal.

56. (New) The medical device system of claim 1, wherein the implantable component is further configured to begin operating in the first treatment therapy mode upon stopping operating according to the second treatment therapy mode.

57. (New) The medical device system of claim 1, wherein the first treatment therapy mode provides treatment therapy in an open-loop mode and the second treatment therapy mode provides treatment therapy in a closed-loop mode.

58. (New) The medical device system of claim 1, wherein the first external component comprises an external wearable digital signal processing unit configured to be wearable by a patient.

59. (New) The medical device system of claim 11, wherein the implantable component is further configured to detect that the first external component is not present based on not receiving the signal from the first external component within a first period of time.

60. (New) The medical device system of claim 11, wherein the implantable component is further configured to periodically send an outgoing signal from the implantable component to the first external component and receive the signal from the first external component in reply to the outgoing signal.

61. (New) The medical device system of claim 11, wherein the implantable component is further configured to begin operating in the first treatment therapy mode upon stopping operating according to the second treatment therapy mode.

62. (New) The medical device system of claim 11, wherein the first treatment therapy mode provides treatment therapy in an open-loop mode.

63. (New) The medical device system of claim 11, further comprising one or more monitoring elements coupled to the implantable component, the one or more monitoring elements configured to sense neurological activity and generate a corresponding neurological signal comprising neurological data.

64. (New) The medical device system of claim 63, wherein the second treatment therapy mode adjusts treatment therapy based on the neurological data.

65. (New) The medical device system of claim 63, wherein the second treatment therapy mode supports an alarm in response to the neurological data being indicative of an impending medical condition.

66. (New) The medical device system of claim 11, wherein the first treatment therapy mode provides a first loop recording capability, and wherein the second treatment therapy mode provides a second loop recording capability, the second loop recording capability comprising at least one of a longer period of time and a greater number of monitored signals than the first loop recording capability.

67. (New) The medical device system of claim 11, wherein the implantable component is further configured to simultaneously operate according to the first treatment therapy mode and according to the second treatment therapy mode if the implantable component detects that the first external component is present.

68. (New) The medical device system of claim 11, wherein the implantable component is further configured to detect the presence of a second external component and begin operating in conjunction with the second external component according to a third treatment therapy mode if the implantable component detects that the second external component is present.

69. (New) The medical device system of claim 11, wherein the nervous system disorder is selected from the group consisting of a disorder of a central nervous system, a disorder of a peripheral nervous system, a mental health disorder, and a psychiatric disorder.

70. (New) The medical device system of claim 11, wherein the nervous system disorder is selected from the group consisting of epilepsy, Parkinson's disease, essential tremor, dystonia, multiple sclerosis (MS), anxiety, a mood disorder, a sleep disorder, obesity, and anorexia.

71. (New) The medical device system of claim 11, wherein at least one of the first and the second treatment therapy modes provide a treatment therapy selected from the group consisting of electrical stimulation, magnetic stimulation, drug infusion, brain temperature control, and a sensory warning.

72. (New) The medical device system of claim 71, wherein the treatment therapy is provided to a location of a body selected from the group consisting of a brain, a vagal nerve, a spinal cord, and a peripheral nerve.

73. (New) The method of claim 13, further comprising sensing neurological data using one or more monitoring elements coupled to the implantable component and generating a corresponding neurological signal comprising neurological data corresponding to a patient.

74. (New) The method of claim 13, further comprising:

operating the implantable component of the medical device system in the first treatment therapy mode without the use of the first external component; and

operating the implantable component of the medical device system in a third treatment therapy mode without the use of the first external component,

wherein the first treatment therapy mode is an open-loop mode and the third treatment therapy mode is a closed-loop mode.

75. (New) A medical device system for treating a nervous system disorder, the medical device system comprising an implantable component configured to

operate according to an open-loop treatment therapy mode,

receive a signal from a first external component, the signal indicating the presence of the first external component,

detect that the first external component is present based on receiving the signal,

begin operating in conjunction with the first external component according to a closed-loop treatment therapy mode if the implantable component detects that the first external component is present,

detect that the first external component is not present based on not receiving the signal, and

stop operating according to the closed-loop treatment therapy mode if the implantable component detects that the first external component is not present.